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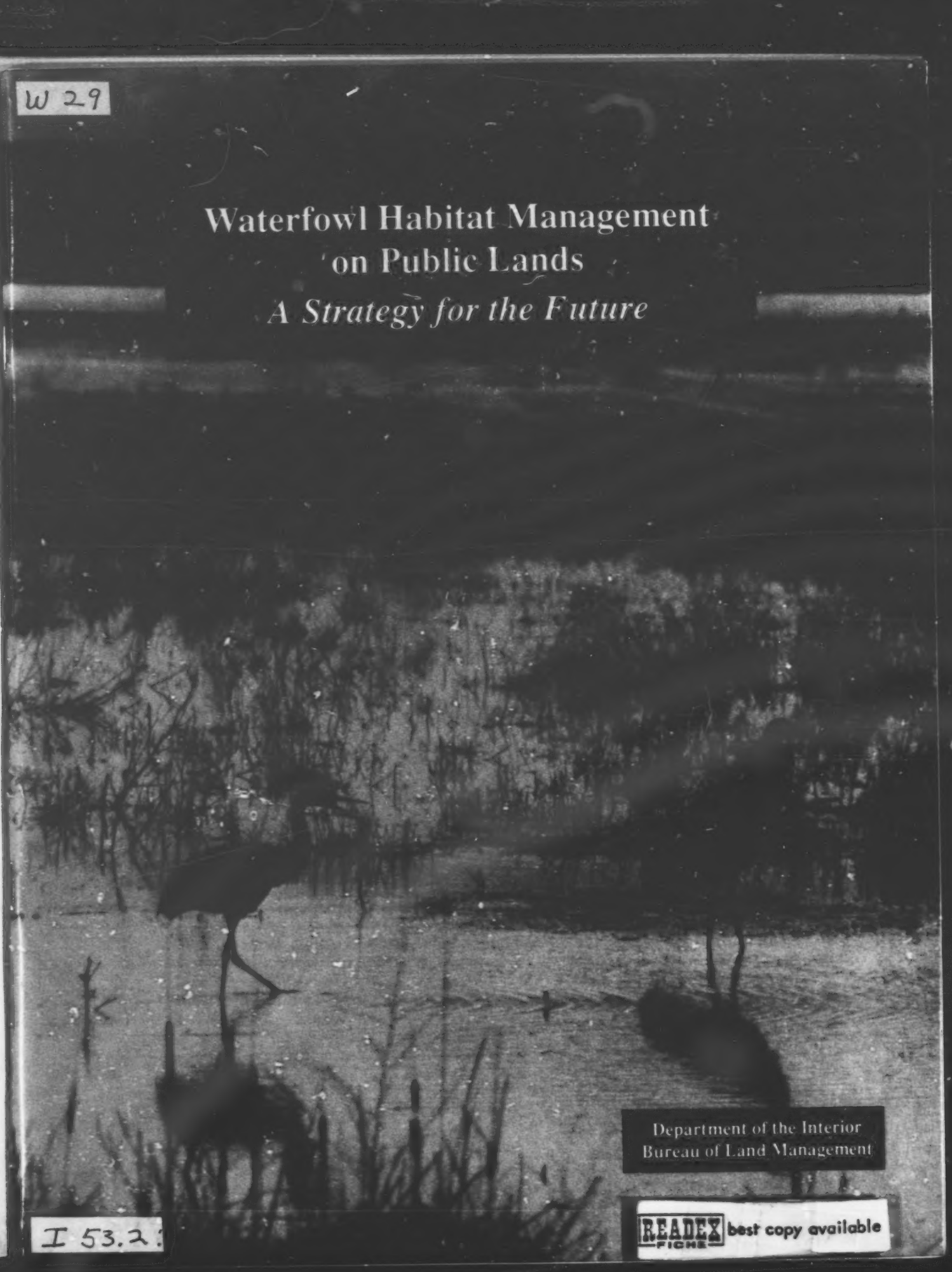
Waterfowl Habitat Management on Public Lands

A Strategy for the Future



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Waterfowl Habitat Management on Public Lands

A Strategy for the Future

Prepared for
Chief, Division of Wildlife and Fisheries
Bureau of Land Management
Washington, D.C.

Written by
BLM Waterfowl Habitat Team

Clay Bridges—Canon City District Biologist, Colorado
Steve Hawks—Susanville District Biologist, California
Raymond Hoem—Fish and Wildlife Program Leader, Montana State Office, Chairperson
Neal Middlebrook—Wildlife Program Manager, Washington, D.C.
Mike Penfold—State Director, Alaska
Ron Trogstad —Area Manager, Vernal, Utah

Director's Foreword

In October 1988, then Vice President Bush said, "My position on wetlands is straightforward: All existing wetlands, no matter how small, should be preserved."

A concerted and diligent effort is required to maintain, restore, and increase the productivity of wetlands on America's public lands. This must be done to offset the continued decline of the Nation's wetlands to provide continuing benefits to the American people. Wetlands, and associated wildlife, especially waterfowl, are facing rapid changes that have become increasingly evident over the past several years.

Protection and management of wetlands cut across all jurisdictional boundaries. The Bureau of Land Management (BLM), other Federal agencies, State fish and wildlife agencies, and interested citizens and groups all have vital roles to play in cooperative wetlands management to ensure that they are bequeathed in good condition to future generations.

The BLM alone has stewardship responsibilities for 20 million acres of wetlands held in trust for the Nation, and has a major role in safeguarding these areas under multiple-use and sustained yield principles. Identification, acquistion, and management of important wetlands will be increasingly important.

In May 1987, "Fish and Wildlife 2000: A Plan for the Future," was approved. This plan sets forth national goals and objectives for more efficient management of fish and wildlife resources on the public lands. It includes a specific goal and objectives for waterfowl habitats. To identify specific strategies for accomplishing these national level waterfowl objectives, a team of BLM managers and biologists was established in 1987.

This strategic plan is the result of that team's efforts. It outlines the future direction of wetlands management on the BLM's national public lands system. The specific management opportunities and recommended strategies identified by the team provide a roadmap for the BLM to more effectively manage wetlands to benefit continental populations of waterfowl, including BLM's participation in implementation of the North American Waterfowl Management Plan (NAWMP). Implementation of these strategies will benefit the American people and the myriad of fish and wildlife using wetlands. While many actions to improve wetlands are already underway, full implementation of this plan will occur over a period of years.

Robert J Burford — 2/27/89

Director — Date

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Executive Summary

The purpose of this strategic plan for wetlands and waterfowl habitat is to identify resource opportunities and actions required to accomplish national-level waterfowl goals and objectives outlined in *Fish and Wildlife 2000*. Consistent with Goal 3, Objective 2 in the wildlife component of *Fish and Wildlife 2000*, this plan also describes BLM's role in implementation of the *North American Waterfowl Management Plan*. This plan was developed by a team composed of Bureau of Land Management managers and biologists in 1987. Several private organizations, State Wildlife Agencies and the Fish and Wildlife Service provided helpful suggestions and comments.

Another purpose of this plan is to provide the framework for wetland habitat management Bureauwide with special emphasis on waterfowl habitat management. Recent studies indicate that more than half of the 200 million acres of wetlands that existed in the contiguous United States at the time of European settlement have been lost, primarily due to agricultural and urban expansion. Because of the continued loss of wetlands on private lands, BLM-managed wetlands have become even more critical in maintaining continental populations of waterfowl and shorebirds. Currently, BLM administers some 20 million acres of wetlands that are biologically essential to these species.

During the course of the team's work, some 229 high-value habitats or Waterfowl Habitat Management Areas (WHMA's) were identified on BLM lands. On-the-ground management has been initiated on 82 of these areas. Habitat Management Plans, however, have been developed on only 66 of the 229 areas. Currently, intensive wetlands management is occurring on 270,000 acres or 1.4 percent of the total wetlands resource administered by the Bureau.

The team identified a number of specific strategies and recommendations for achieving the *Fish and Wildlife 2000* waterfowl objectives, which are summarized below:

Habitat Inventory. Conduct inventories of wetland habitat to determine condition and management potential on 12 million acres within 170 WHMA's.

Habitat Improvement. Improve 1.7 million acres of existing wetland habitat within 144 WHMAs.

Habitat Expansion. Develop an additional 80,000 acres of wetland habitat on 68 WHMAs.

Habitat Management Planning. Develop habitat management plans on 183 WHMAs encompassing 10 million acres of wetland habitat.

Habitat Acquisition. Acquire 2 million acres of wetland habitat through exchange, donation, or purchase within or adjacent to 97 WHMAs.

Habitat Maintenance. Maintain 12.6 million acres of wetland habitat in acceptable condition on 99 WHMAs.

Introduction

The Nation already has lost more than half of the wetlands that existed in the contiguous United States when European settlement began. Approximately 200 million acres of wetlands existed at the time of settlement and by 1975, the number of acres decreased to 99 million. Over the past two decades the rate of wetland loss has been 400,000 to 500,000 acres per year according to the U.S. Fish and Wildlife Service (FWS). As a result of the continued loss of wetlands on private lands due to agricultural and urban expansion, the management of wetlands on BLM managed lands has become even more critical to sustain associated biological, physical and chemical functions of wetlands.

This strategic plan outlines the future direction of wetland habitat management and identifies opportunities for BLM participation in implementation of the *North American Waterfowl Management Plan* (NAWMP) on BLM managed lands. Moreover, this plan supports a number of the recommendations addressed in the "Final Report of the National Wetlands Policy Forum" prepared by the Conservation Foundation, 1988. The wetlands policy forum recommends that:

> "The Nation establish a National Wetlands Protection Policy to achieve no overall net loss of the nations remaining wetlands base as defined by acreage and function and to restore and create wetlands, where feasible, to increase the quality and quantity of the nations wetlands resource base."

Additionally this plan focuses on wetland management as outlined by President George Bush, as quoted in October 1988, "My position on wetlands is straightforward: All existing wetlands, no matter how small, should be preserved."

Aside from their value as wildlife habitat, wetlands perform many key functions:*

Flood Conveyance. Riverine wetlands and adjacent floodplain lands often from natural floodways convey floodwaters from upstream to downstream points.

Flood Storage. Inland wetlands may store water during floods and slowly release it to downstream areas, lowering flood peaks.

Sediment Control. Wetlands reduce flood flows and the velocity of flood waters, reducing erosion and causing flood waters to release sediment.

Habitat for Waterfowl and Other Wildlife. Both coastal and inland wetlands provide essential breeding, nesting, feeding and predator escape habitat for many forms of waterfowl, other birds, mammals and reptiles.

Habitat for Rare and Endangered Species. Almost 35 percent of all rare and endangered animal species are either located on wetland areas or depend on them, although wetlands constitute only about 5 percent of the nation's lands.

Recreation. Wetlands serve as recreation sites for fishing, hunting, observing, and photographing wildlife.

Water Supply. Wetlands are increasingly important as a source of ground and surface water with the growth of urban centers and dwindling ground and surface water supplies.

Food Production. Because of their high natural productivity, both tidal and inland wetlands have unrealized food production potential for harvesting of marsh vegetation and aquaculture.

Education and Research. Tidal, coastal and inland wetlands provide education opportunities for nature observation and scientific study.

Water Quality. Wetland contribute to improving water quality by removing excess nutrients and many chemical contaminants. They are sometimes used in tertiary treatment of wastewater.

**Source: Adapted from J. A. Kusler, Our National Wetland Heritage: A Protection Guidebook (Washington, D.C.: Environmental Law Institute, 1983).*

Blackneck Stilt

The plan identifies strategies for managing nearly 20 million acres of wetlands and associated habitats on BLM lands for enhancement of continental populations of waterfowl and other fish and wildlife dependent on wetland habitats. For explanation purposes, this plan divides wetland habitat on the basis of (1) waterfowl habitat management areas (WHMA) within major areas of concern addressed in the *North American Waterfowl Management Plan* (Figure 1), and (2) waterfowl habitat management areas outside areas of major concern (Figure 2). For purposes of this report, waterfowl habitat management areas were defined as a specific, identifiable geographic area that encompasses all physically or functionally related habitats required to meet priority species needs during a given period of time.

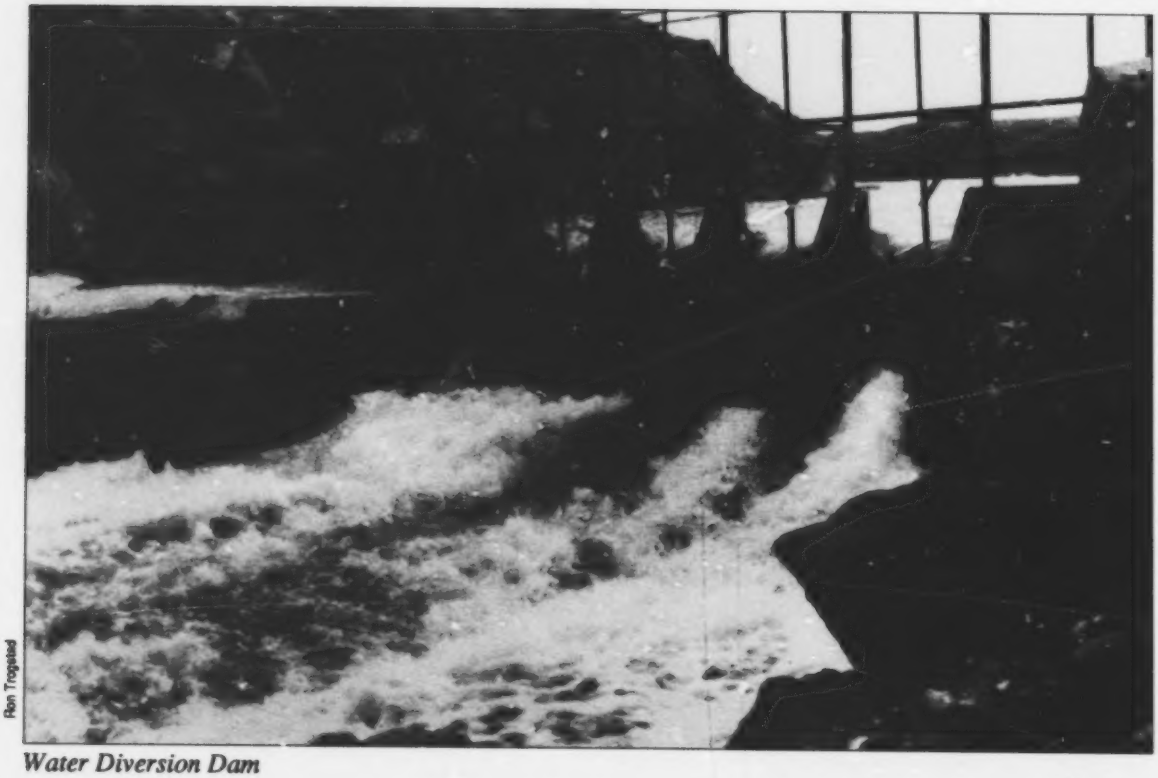
Waterfowl are the most prominent and economically important group of migratory birds in North America. They are highly prized as game birds by millions of hunters in Canada, the United States and Mexico. They also attract the attention of even larger numbers of people who enjoy nonconsumptive uses of them such as observation and photography. North American waterfowl populations generate direct expenditures by these people, in excess of several billions of dollars annually.

Waterfowl populations are tied directly to the quality and quantity of wetland habitat. Several waterfowl species populations are severely depressed from averages just over a decade ago. Continued loss of wetland, primarily through habitat alteration, such as agricultural and urban expansion on private lands, has diminished the likelihood that these populations will recover to mid-1960s and 1970s numbers. Harvest and populations have fluctuated greatly over the past 10 years, but have generally declined since the 1970s.

Public interest in perpetuating waterfowl resources is widespread both nationally and internationally and includes many diverse groups. In some areas, wetlands are being restored, placed under management and/or maintained with funds, materials or labor contributed by diverse groups of people.

Figure 1. *Waterfowl Management Areas on BLM lands outside areas of major concern.*

Figure 2. *Waterfowl Habitat Areas of major concern in the United States, 1985, (North American Waterfowl Plan, 1986:10).*



Ron Trogstad

Water Diversion Dam

Legislation and Policy

The following laws, regulations and executive orders provide the foundation for management of wetlands and wetland habitat on public lands:

Emergency Wetlands Resources Act of 1986. Promotes the conservation of wetlands by intensifying cooperative efforts among state, private and federal interests.

Food Security Act of 1985 (Farm Bill). Provides incentives for wetland protection and restoration on farmlands.

Clean Water Act of 1977 (Federal Water Pollution Control Act). Provides for protection, restoration or improvement of water quality, including wetlands.

Water Quality Act of 1987 (Amendment to Clean Water Act). Established program to manage nonpoint source pollution.

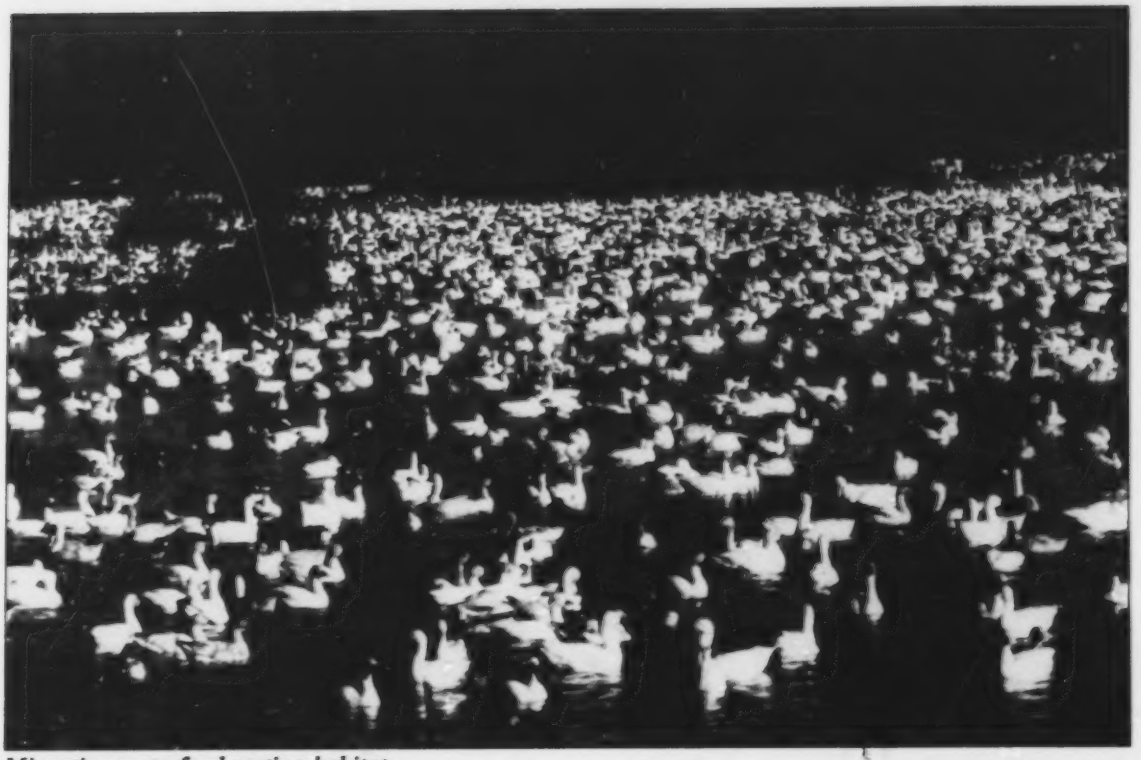
Land and Water Conservation Fund Act of 1964. Established a fund to preserve, develop and assure access to outdoor recreation resources.

Executive Order 11988 (Floodplain Management). Mandates a reduction in hazards to human safety, preserves values served by floodplains.

Executive Order 11990 (Protection of Wetlands). Minimize destruction, loss or degradation of wetlands.

Interior Department Policy (BLM Manual 1731). Implemented to preserve, protect and acquire wetlands, riparian areas as necessary.

BLM Manual 1737. Provides guidelines for protecting and acquiring wetland or riparian areas as needed to preserve this habitat type.



Migrating waterfowl resting habitat.

Fish and Wildlife 2000

In May 1987, the BLM's Director Burford approved a strategic plan for the BLM's wildlife and fisheries program entitled *Fish and Wildlife 2000*. That plan set forth the following goal and objectives for the program.

Goal: Help perpetuate a diversity and abundance of waterfowl by managing the wetlands and other habitats on the public lands that are of importance to the maintenance of this international resource.

Objectives:

• Identify and rank by importance key waterfowl habitat areas on public land at the state, district and resource area levels, using best available inventory data.

• For each key waterfowl habitat area identified, summarize at the state level, management needs and activities to be used as part of a national plan outlining BLM's cooperative effort to further the *North American Waterfowl Management Plan* signed by the United States and Canada.

• Implement cooperative plans and projects with other agencies, landowners, and private organizations to enhance the waterfowl resource according to schedules developed at the state office level, as financial resources are available.

• Strengthen communication and cooperative efforts with the Fish and Wildlife Service, Ducks Unlimited and others to better ensure their awareness, financial and other support for waterfowl habitat management initiatives on public lands.

The achievement of the objectives identified in the *Fish and Wildlife 2000* plan will result in better wetland habitat management activities on BLM-managed lands.

North American Waterfowl Management Plan

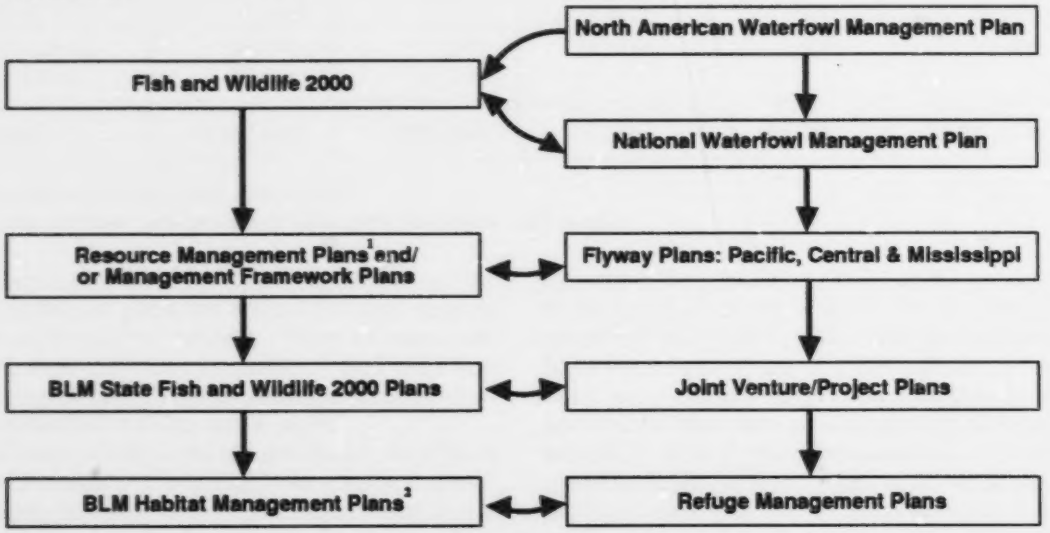
Management actions on public lands will result in improvement of habitat areas of major concern as identified in the *North American Waterfowl Management Plan* developed jointly by the United States and Canada in 1986 as well as in areas not included in the plan. The *North American Waterfowl Management Plan* establishes waterfowl population goals that the two countries believe will meet the future public demand for recreational enjoyment of waterfowl. These goals are based on the fall flight numbers of waterfowl. To achieve these fall flight objectives, a base breeding population is necessary to ensure the annual reproduction of young birds. The BLM's contribution toward these international objectives will involve managing habitat that provides nesting, rearing, migrating and wintering places for ducks, geese, and swans on BLM lands.

The *North American Waterfowl Management Plan* outlines specific recommendations for future actions, several of which relate directly to the BLM:

- Public land management agencies should be encouraged to regulate land use to prevent destruction or degradation of waterfowl habitats;
- Existing public lands should be managed to increase their productivity and carrying capacity for waterfowl;
- Public land management agencies should acquire wetlands of extraordinary value, in fee title, if they cannot be protected any other way;
- Joint ventures should be encouraged between governments and private organizations to cooperate in the planning, funding and implementation for projects that preserve or enhance waterfowl habitat;
- Public works project planning should include the prevention or mitigation of destruction or degradation of waterfowl habitats;

The BLM has a key role to play in restoring continental populations of waterfowl given the nature of these recommendations and the significance of wetland/waterfowl habitats on some areas of BLM lands and as mandated under existing legislation and executive orders. The relationships between the FWS and BLM planning as they relate to implementation of the *North American Waterfowl Management Plan* are depicted in Figure 3.

Figure 3. *Coordination on Waterfowl Management Planning, Bureau of Land Management & Fish and Wildlife Service*


North American Waterfowl Management Plan
Fish and Wildlife 2000
National Waterfowl Management Plan
Resource Management Plans[1] and/ or Management Framework Plans
Flyway Plans: Pacific, Central & Mississippi
BLM State Fish and Wildlife 2000 Plans
Joint Venture/Project Plans
BLM Habitat Management Plans[2]
Refuge Management Plans

[1] ***Resource Management Plan (RMP)*** *- An approved plan for the management of all the resources in a specific BLM Resource Area.*

[2] ***Habitat Management Plan (HMP)*** *- An approved plan, for a specific geographic area, which identifies habitat management actions to achieve objectives for priority wildlife species.*

Significance of Waterfowl Habitats on BLM Lands

As increased pressure is placed on private wetlands, the remaining habitat areas on public lands assume greater importance in achieving continental waterfowl objectives. In some areas, public lands are the only lands that have any waterfowl habitat remaining. In many cases, these habitats are scattered and provide strategically located habitats. Unfortunately, predators are frequently attracted to these isolated areas. This often leads to a loss of nesting females and/or young from predation. Consequently, the production from many of these scattered habitats does not offset the annual mortality and loss to the waterfowl population.

The past 20 years have brought significant changes in the way BLM is managing the public lands including wetlands. The key turning point occurred in 1976 with the passage of the Federal Land Policy and Management Act. This gave the BLM a multiple-use mandate and responsibility to increase stewardship of natural resources including waterfowl habitats. The executive orders and laws listed in the earlier table gave further impetus to BLM's mandates. Currently BLM administers nearly 20.6 million acres of waterfowl habitat which constitutes about 10 percent of the total acres administered (Table 1).

Table 1. *Existing Waterfowl Habitat on BLM Lands*

State	Acres Wetlands	Acres Lakes	Acres Reservoirs	Miles Streams	Total Acres
Alaska	15,848,000	3,874,000	None	65,000	19,722,000
Arizona	1,600	2,000	1,700	600	5,300
California	139,000	41,000	91,100	700	271,100
Colorado	44,000	1,000	19,000	1,800	64,000
Idaho	11,000	10,000	39,000	3,500	60,000
Montana	40,000	26,000	22,000	1,100	88,000
Nevada	94,000	25,000	5,000	1,100	124,000
New Mexico	7,000	2,000	3,000	200	12,000
Oregon and Washington	84,000	56,000	30,000	7,600	170,000
Utah	29,000	5,000	8,000	2,300	42,000
Wyoming	33,000	8,000	29,000	1,300	70,000
E. States[1]	32,000	32,000			
Total	16,362,600	4,082,000	247,800	85,200	20,692,400

Data collected from BLM field reports, 1987

[1] *Includes all States occurring east of a line approximating the 100th meridian*

Because of the scarcity of these habitats and the rich variety of plant and animal life they support, they are extremely valuable. Many of these wetlands, especially those occurring in the Prairie Pothole Region and Alaska are among the most productive waterfowl habitats in the world.

From a purely economic standpoint, these lands provide a wealth of benefits. If we assume that each duckling produced to the flight stage is estimated to provide one waterfowl hunter day, then we could say that a bird is worth at least $15 (FWS 1980). Thus, increasing the population by .75 ducks per acre of BLM wetland habitat, in the lower 48 States, the benefits to the general public could be estimated to be in the neighborhood of $10.5 million per year. Since many of the waterfowl projects that are built upon public lands have an estimated life of 30 years, benefits to those projects are estimated over the 30-year life of the project. Thus, if .75 duckling are produced each year for 30 years on each acre of public waterfowl habitat in the lower 48 States, BLM would contribute in excess of $315 million of

public benefits. This is truly a staggering benefit for use of BLM lands but one that is attainable. While BLM may not produce an additional .75 duckling on each acre of public wetlands that is currently under its jurisdiction, the additional numbers of waterfowl produced on acres of habitat undergoing improvement could well exceed that number many fold. This analysis is only a small measure of the benefits that could accrue because no benefits were given for the nonconsumptive use of waterfowl which is also worth millions of dollars.

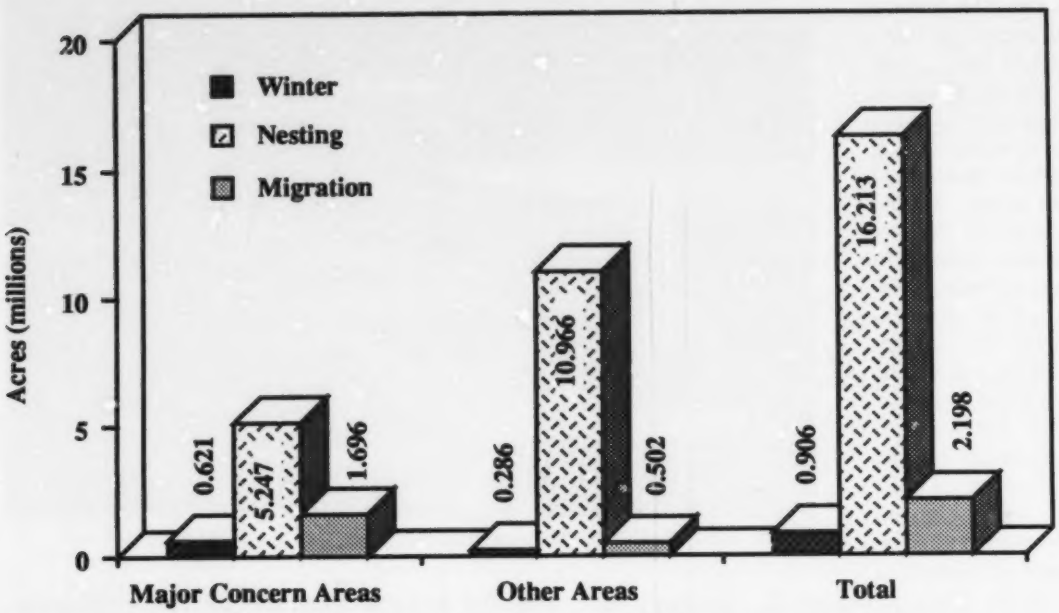
Thomas Kitchen/Tom Stack & Associates

Osprey Nest

Seasonal Habitat

Waterfowl habitat on public lands falls into three basic categories: production habitat, migration habitat and wintering habitat. Production habitat is used during the nesting season; migration habitat is used during the migration seasons and may consist of resting or staging areas; and wintering habitat is used during the winter season and may vary in importance and location according to the severity of the winter. Substantial nesting, winter and migration habitat occurs on BLM lands along with considerable moulting habitat (Figure 4). Seasonal acreage figures by State can be found in Appendix I.

Figure 4. *Seasonal Waterfowl Habitat on BLM Lands.*



Acreage figures identified in this figure can be additive because habitat may be used in more than one way.

Typical marsh nesting habitat.

Waterfowl Habitat Management Areas

Within the 20.6 million acres of waterfowl habitat on BLM lands, field offices identified a total of 229 waterfowl habitat management areas during an analysis associated with this report. Of the 229 waterfowl habitat management areas, 44 areas occur in major waterfowl habitat management areas of concern listed in the *North American Waterfowl Management Plan.* Sixty-five of the waterfowl habitat management areas have habitat management plans developed for improvement of waterfowl habitat (Table 2 and Appendix II). Currently the Northern Great Plains Waterfowl Habitat Management area is within the Prairie Pothole Joint Venture planning area and represents the first cooperative planning effort under the *North American Waterfowl Management Plan* between BLM and FWS.

John Schwartz

Aerial View of Blanca Management Area

Table 2. *Number of WHMAs* and HMPs** by State*

State	WHMAs by State		HMPs by State	
	Areas of Concern	Other Areas	Areas of Concern	Other Areas
Alaska	2	11	1	0
Arizona	0	11	0	6
California	2	24	0	3
Colorado	0	15	0	5
Idaho	1	67	0	2
Montana	11	7	2	2
Nevada	0	3	0	0
New Mexico	0	9	0	7
Oregon	20	5	19	1
Utah	0	27	0	8
Wyoming	2	6	2	7
E. States	6	0	0	0
Total	44	185	24	41

**Wildlife Habitat Management Areas*

***Habitat Management Plans*

Waterfowl Species

The species listed in Table 3 are the focus of management as identified by BLM Field Offices. The first part of the table identifies species that are listed in the *North American Waterfowl Management Plan* as high interest species. The second part of the table identifies other species listed in the same plan for which management efforts are being carried out. Some species such as the Canada Goose occur over several states while habitat for certain other species, such as the Eider and Snow Goose, are important to only one or two individual states.

Table 3. Waterfowl Species to Benefit from Plan Implementation

Species of Special Concern	BLM State Offices											
	AK	AZ	CA	CO	ID	MT	NV	NM	OR	UT	WY	ES[1]
Mallard	X	X	X	X	X	X	X	X	X	X	X	X
Northern Pintail	X	X	X	X	X	X	X	X	X	X	X	X
Canvasback		X	X		X	X	X		X	X	X	X
Whitefronted Goose	X											
Cackling Goose			X						X			
Dusky Goose									X			X
Pacific Black Brant	X								X	X	X	
Trumpeter Swan	X								X			
Aleutian Canada Goose	X	X	X		X		X	X	X	X		
Redhead			X									

Priority Species on Public Lands	BLM State Offices											
	AK	AZ	CA	CO	ID	MT	NV	NM	OR	UT	WY	ES[1]
Eider (all)	X											
Tundra Swans	X		X		X	X	X		X	X		
Canada Goose	X		X	X	X	X	X	X	X	X	X	
Sandhill Crane			X		X			X			X	
Teal (All)			X	X	X	X		X	X			
Ruddy Duck			X					X				
American Wigeon			X		X			X		X		
Lesser Scaup			X					X				
Northern Shoveler			X		X			X				
Bufflehead			X					X				
Wood Duck			X		X	X						
Gadwall				X				X				
Whooping Crane				X	X						X	
Merganser (All)				X								
Snow Goose								X				

[1] *ES = Eastern States (includes all states east of a line approximately the 100th Meridian)*

Rod Planck/Tom Stack & Associates

Mallard

Current Management

The Bureau's waterfowl habitat management program focuses primarily on specific areas and responds to issues and opportunities identified in land-use and activity plans. Habitat objectives outlined in 64 habitat management plans have provided the basis for accomplishing waterfowl/wetlands management on approximately 269,000 acres of habitat. Management of waterfowl/wetlands resources in response to other multiple uses on public lands are identified in land-use plans and/or mitigation measures developed in accordance with the National Environmental Policy Act process.

The inventory of wetland resources is conducted to provide a foundation for plan development and monitoring. Activity plans such as Habitat Management Plans, Allotment Management Plans, etc., are developed to establish site- specific waterfowl habitat objectives. Wetlands improvement projects identified in activity plans include dike construction, fencing to establish and protect nesting cover, and planting of waterfowl food. Land use decisions, objectives and implementation actions are monitored through activity plans to measure the success in accomplishing waterfowl habitat objectives.

The BLM has initiated management on 82 different waterfowl habitat management areas encompassing in excess of 269,000 acres and has invested in excess of $4.8 million for improving waterfowl populations and habitat (Table 4).

Table 4. *Habitat Improvement Completed*

State	Affected Acres	Dollars Spent
Alaska	—	—
Arizona	200	39,000
California	108,800	378,100
Colorado	11,800	1,189,900
Idaho	2,000	157,100
Montana	40,000	1,019,000
Nevada	36,200	425,000
New Mexico	2,200	2,500
Oregon	30,000	240,200
Utah	18,000	984,000
Wyoming	20,000	449,000
Eastern States	—	—
Total	269,200	4,883,800

The BLM has already initiated many projects that provide habitat for waterfowl. Current management has focused on the following five areas:

Natural Wetland Management and Enhancement

- Prairie Pothole region of Montana and North Dakota
- Inventory of Alaska's key wetlands: Teshekpuk Lake, Arctic Coastal Plain, Seward Peninsula and Tozitna
- Warner Valley Pothole Area, Oregon
- Surprise Valley, California

Man-made Wetlands Habitat Development

- Blanca Waterfowl Management Area, Colorado
- Trueblood Wildlife Area, Idaho
- Spring Valley, Nevada
- Overflow Wetlands, New Mexico
- Pariette Waterfowl Area, Utah

Stock Pond and Reservoir Enhancement

- This Bureauwide effort includes increasing the productivity of these habitats and

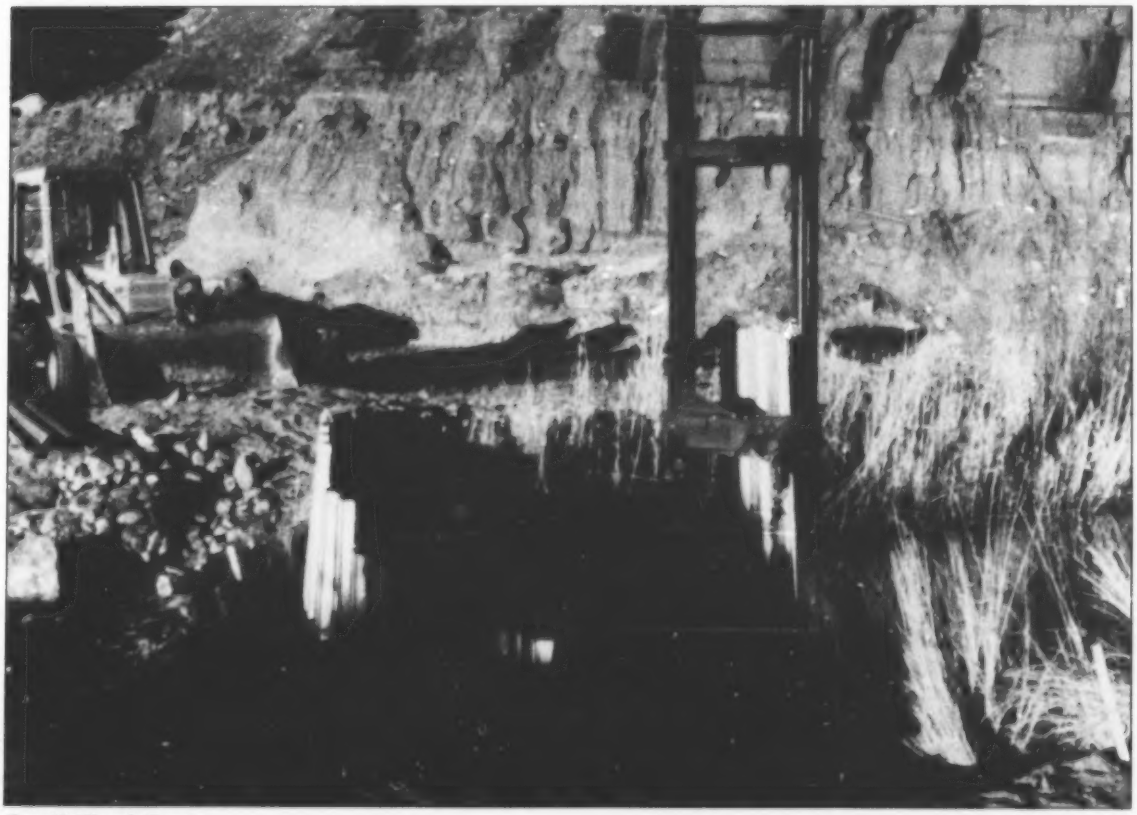
associated uplands for migrating and wintering waterfowl and shorebirds.

Mitigation of Wetlands Habitat Values

- Specific habitat enhancement projects are used to mitigate the impacts resulting from development activities.

Wetlands Acquisition

- The Bureau is actively pursuing the acquisition of wetlands through exchange, donation or purchase, especially in areas adjacent to Waterfowl Habitat Management Areas. Examples of recently acquired key wetlands include Warner Lakes Potholes, Oregon; New River Estuary, Oregon; San Sebastian Marsh, California and the Hagenbarth Tract, Montana.



Ron Trogstad

Small Check Dam

Management Opportunities and Recommended Strategies

This section outlines the opportunities and strategies for implementing the waterfowl component of *Fish and Wildlife 2000*. Estimates of costs and identified accomplishments were provided by BLM field offices.

Some of the strategies can be directly addressed by field offices by integrating with state-level *Fish and Wildlife 2000* plans and/or other appropriate agency plans or documents. coordination with State Wildlife Agencies, the Fish and Wildlife Service, and private organizations such as Ducks Unlimited during development and implementation of strategies will ensure appropriate integration with the *North American Waterfowl Management Plan* and other waterfowl initiatives on public lands.

Objective 1—Inventory and Evaluation/Classification

Management Opportunities

Clapper Rail

Inventory information is essential in providing a basis for managing waterfowl habitat resources. Although a number of the waterfowl habitat management areas have baseline inventory information, a significant number require more recent data to (1) update existing information; (2) document known significant changes in habitat condition; (3) prepare activity plans, i.e., Habitat Management Plans, Allotment Management Plans, etc.; (4) establish a baseline for monitoring; and (5) identify habitat improvement opportunities.

BLM has not inventoried its wetland resources in Alaska, primarily because of their remoteness and continuing land adjustments required under the Alaska Native Claims Settlement Act. The 10 million acres of wetland habitat in Alaska, as well as 2 million acres of BLM lands in other states need to be inventoried.

Recommended Strategies

1. Conduct habitat inventories and evaluations to determine habitat condition and improvement potential of 170 waterfowl habitat management areas covering nearly 12 million acres by the year 2000. The inventory of waterfowl habitat management areas within major areas of concern listed in the *North American Waterfowl Management Plan* should be given priority. Focus inventory efforts in Alaska to collect baseline wetland information necessary to prepare Resource Management Plans and Habitat Management Plans.

2. Identify existing and anticipated wetland inventory maps and statistics needed to support waterfowl habitat planning which are produced as part of the FWS's National Wetlands Inventory project.

3. Based on the results of wetland inventory and mapping pilot efforts with Ducks Unlimited's landsat efforts in Alaska and Montana, determine Bureauwide application.

4. Develop wetlands ecological site descriptions for use in the BLM's Integrated Habitat Inventory Classification System and Riparian and Aquatic Inventory Data System and link to the FWS wetlands classification system devcloped by Cowardin.

Objective 2—Habitat Improvements

Management Opportunities

Habitat improvement consists of cost-effective investment in wetland structures and establishment of nesting and breeding cover and waterfowl food resources. The associated costs and acres to be improved, listed in Table 5, will provide for the enhancement of existing waterfowl habitat and, thus, increase waterfowl production within individual waterfowl habitat management areas. Habitat improvements are listed within activity or project plans covering a specific waterfowl habitat management area or areas and supported by specific waterfowl habitat objectives. Development and installation of habitat improvements are closely coordinated with other programs and multiple uses within BLM and state wildlife agencies, private groups and organizations.

Recommended Strategies

1. Improve 1,719,886 acres of existing waterfowl habitat within 144 waterfowl habitat management areas (Table 5) at a cost of $5.5 million dollars by the year 2000 through cost-effective investment in habitat improvement projects.

2. Document and evaluate economic and biological values derived from habitat improvement projects and practices for both consumptive and nonconsumptive uses.

3. Develop cooperative wetland project lists on an annual basis with conservation groups, such as:

- Ducks Unlimited
- American Duck Hunters Association
- Private Industry
- Local National Wildlife Federation affiliates

Table 5. *Proposed Habitat Improvement*

State	Major Areas of Concern		Other Areas		Estimated Cost $
	WHMAs	Acres to be Improved	Requiring Habitat Improvement	Acres to be Improved	
Alaska[1]	0	0	0	0	0
Arizona	0	0	5	8,920	67,000
California	9	4,525	19	5,586	304,000
Colorado	0	0	7	10,000	930,000
Idaho	0	0	52	12,800	664,000
Montana	9	1,218,880	18	1,228,380	1,050,600
Nevada	0	0	3	79,000	400,000
New Mexico	0	0	7	26,900	31,500
Oregon	7	28,100	10	191,100	292,000
Utah	0	0	18	78,500	956,100
Wyoming	0	0	5	78,700	832,000
E. States	0	0	0	0	0
Total	25	1,251,505	144	1,719,886	5,527,200

[1] *unknown until inventories and habitat assessments can be completed*

- Local Audubon chapters
- California Waterfowl Association
- Nature Conservancy
- Others

4. Obtain water appropriations/reservations on currently available but unused reserves (Artesian flows, oil field treated water, irrigation flows, etc.) to ensure long-term productivity of wetland habitats.

John Garbacy/Tom Black & Associates

Pintail

Objective 3—Habitat Acquisition

Management Opportunities

Habitat acquisition consists of acquiring wetland habitats through donations, exchanges or purchases. The majority of waterfowl habitats proposed for acquisition were identified through the land use plan and activity plan process. Acquisition of these wetlands habitats would simplify and, in some cases, improve management of existing waterfowl habitat management areas, especially for wetland complexes adjacent to or surrounded by public lands. Acquisition of wetland habitats will also provide additional opportunities for recreation which will benefit local economies. Legislation such as the Emergency Wetlands Resources Act of 1986, and the Food Security Act of 1985 (Farm Bill), and the Land and Water Conservation Fund Act of 1964 provide additional opportunities to acquire important wetland habitats.

Recommended Strategies

1. Acquire a total of 1,369,900 acres of key wetland habitats through exchange, donation or purchase within or adjacent to,97 waterfowl habitat management areas at a cost of $23,912,500 or about $17 per acre* by the year 2010.

2. Develop wetland acquisition packages on a state basis that are consistent with the wetlands acquisition criteria included in the National Wetlands Priority Conservation Plan. This plan is required under the Emergency Wetlands Resources Act of 1986. Submit proposals through FWS's land acquisition priority fund system to determine the priority for use of the Land and Water Conservation Fund Act appropriations.

3. Review on a state basis, comprehensive outdoor recreation plans, wetlands priority plans

**Based on costs provided in field data, 1988*

and State Wildlife Agency waterfowl management plans and coordinate BLM state wetland acquisition packages with appropriate state agencies.

4. Submit to the FWS regional offices, on an annual basis, priority wetland sites for acquisition to be included into the Regional Wetlands Concept Plans, as prescribed in the National Wetland Priority Conservation Plan.

5. Review all existing withdrawals involving wetland habitat to make certain they retain surface management responsibilities. If these responsibilities have not been retained, BLM should negotiate for the surface management of these areas with the Agency involved. On all proposed withdrawls, involving wetland habitat, ensure retention of surface management responsibilities.

6. Contact the Federal Homeowners Association in each state to establish a state-level memorandum of understanding to take advantage of wetland habitats made available under the conservation easement program and in fee title transfers, as authorized through the Food Security Act (Farm Bill) of 1985 and the Agricultural Credit Act of 1987.

Table 6. *Habitat Acquisition of Important Wetland Habitats*

State	Major Areas of Concern		Other Areas		Total Estimated Costs $
	WHMAs	Acres	Waterfowl Mgmt. Areas Requiring Acquisition	Total Acres Proposed for Acquisition	
Alaska	2	16,000	3	154,000	167,600
Arizona	0	0	0	0	0
California	7	124,740	13	127,300	2,600,000
Colorado	0	0	7	59,800	953,400
Idaho	1	100	30	97,300	8,284,000
Montana	7	760,700	11	762,530	1,628,600
Nevada	0	0	1	100	25,000
New Mexico	0	0	5	60,000	3,200,000
Oregon	9	6,320	11	77,300	4,152,400
Utah	0	0	12	18,750	1,721,500
Wyoming	0	0	4	12,820	1,180,000
E. States	0	0	0	0	0
Total	26	907,860	97	1,369,900	23,912,500

Objective 4—Habitat Expansion

Management Opportunities

Habitat expansion is defined as the development of new wetlands where none existed before. Significant opportunities exist to expand wetland habitats through various management practices such as placing impoundment structures across drainages to make use of natural runoff and, in some instances, wastewater from irrigation and sewage treatment plants. Review of potential wetland expansion sites which can also meet objectives identified by other programs and used on public lands will be a key factor in cost-sharing. A number of land use plans

Beaver

Table 7. *Wetland Habitat Expansion*

State	Major Areas of Concern		Other Areas		
	WHMAs	Acres	Waterfowl Mgmt. Areas Requiring Expansion	Total Acres Proposed for Expansion	Total Estimated Costs $
Alaska[1]	0	0	0	0	0
Arizona	0	0	1	1,200	100,000
California	3	29,100	6	20,490	256,000
Colorado	0	0	7	4,440	416,000
Idaho	0	0	18	3,320	335,000
Montana	9	37,400	12	37,540	3,177,500
Nevada	0	0	0	0	0
New Mexico	0	0	3	1,610	141,000
Oregon	5	310	6	1,310	131,000
Utah	0	0	10	5,480	322,000
Wyoming	2	400	5	3,890	3,154,000
E. States	0	0	0	0	0
Total	19	67,210	68	79,280	8,032,500

[1] *unknown until inventories and habitat assessments can be completed*

Ron Trogstad

Building Rock-Lined Drain

and activity plans have already identified important wetland habitat expansion sites and desired waterfowl management objectives.

Significant opportunities exist to gain unused or unreserved water as part of wetland conservation on public lands. Examples such as those cited in the preceding paragraph occur in many places on public lands and should be used to ensure sustained productivity of wetland habitats.

Recommended Strategies

1. Develop 79,280 acres of additional waterfowl habitat on 68 waterfowl habitat management areas at a cost of $8,032,000 or $101 per acre by the year 2010 (Table 7).

2. In conjunction with waterfowl habitat expansion actions, procure unused or unreserved water appropriations to ensure long-term economic and biological productivity of habitat expansion efforts.

Objective 5—Habitat Maintenance

Management Opportunity

The maintenance of existing habitat conditions is not only critical to protect prior economic investments but is essential to ensure adequate waterfowl production and achievement of waterfowl management objectives.

Recommended Strategies

1. Maintain 12,560,776 acres of waterfowl habitat in acceptable condition on 99 waterfowl habitat management areas (Table 8) requiring about $1,768,400 ($5.00 per acre) annually to ensure continued habitat productivity.

2. Develop maintenance agreements with State Wildlife Agencies, Ducks Unlimited, and others to assist in maintaining wetland habitat improvements.

Table 8. *Habitat Maintenance*

State	Major Areas of Concern		Other Areas		Estimated Cost $
	Acres Requiring Maintenance	Acres	WHMAs Requiring Maintenance	WHMAs Number of Acres	
Alaska	1	1,745,000	12	12,232,600	No Est.
Arizona	0	0	4	7,600	500,000
California	3	3,150	10	4,296	35,000
Colorado	0	0	13	14,120	240,000
Idaho	0	0	20	35,810	64,000
Montana	7	163,100	14	165,730	697,800
Nevada	0	0	3	85,000	40,000
New Mexico	0	0	2	200	50,500
Oregon	0	0	3	2,400	27,000
Utah	0	0	14	11,010	24,100
Wyoming	0	0	4	2,010	84,000
E. States	0	0	0	0	0
Total	11	1,901,250	99	12,560,776	1,768,400

Objective 6—Cooperative Management Agreements/Plans

Management Opportunities

Of the 229 waterfowl habitat management areas, only 66 have been addressed through activity planning such as Habitat Management Plans. It is important to initiate activity planning prior to investing habitat improvement dollars on the ground to ensure waterfowl habitat management objectives have been established. Consequently, before moving forward on project development efforts, approximately 183 waterfowl habitat management areas will require an appropriate level of activity planning. Development of activity plans should be given priority in areas of major concern identified in the *North American Waterfowl Management Plan.*

Waterfowl habitat management areas which are intermingled with other federal, state or private lands should have cooperative management agreements developed to address habitat management needs in cooperation with other landowners, FWS and state wildlife agencies, and interested parties. Cooperative management agreements will provide a more comprehensive and efficient way in which to manage waterfowl habitat (Table 9).

Wendy Shattil/Robert Rozinski/Tom Stack & Associates

Whooping Cranes

Recommended Strategies

1. Develop cooperative management agreements/activity plans for 183 waterfowl habitat management areas covering in excess of 12 million acres of wetlands habitat at a cost of $860,000 by the year 2000.

2. Identify specific waterfowl habitat management areas where cooperative management agreements will be developed and prospective cooperators with whom the BLM can develop activity plans and agreements.

Table 9. *Develop CMAs*/Activity Plans*

State	Total WHMAs	Total Requiring Activity Plans	Total Requiring Activity Plans in Major Areas of Concern	Est. Costs $
Alaska	13	13	1	65,000
Arizona	11	2	0	10,000
California	26	23	2	150,000
Colorado	15	10	0	50,000
Idaho	69	67	1	345,000
Montana	18	13	7	65,000
Nevada	3	3	0	15,000
New Mexico	9	2	0	10,000
Oregon	25	5	1	25,000
Utah	27	19	0	95,000
Wyoming	6	7	1	120,000
E. States	6	6	6	30,000
Total	228	170	19	980,000

**Cooperative Management Agreements*

Objective 7—Coordination/Partnership

Management Opportunity

Coordination with appropriate federal and state agencies, public and private conservation groups and organizations will be critical to implement this plan.

Enhancing coordination and working relationships through cooperative agreements, Memoranda of Understanding, annual meetings, etc., will ultimately result in additional capability for plan implementation.

Better coordination of wetland/waterfowl planning efforts with the FWS, Forest Service, Bureau of Reclamation, Environmental Protection Agency, and State Wildlife Agencies etc., will provide for identification of cooperative planning opportunities, ensure establishment of consistent waterfowl habitat goals and objectives at the local, regional and national levels; decrease duplication of the planning workload; and reduce overall waterfowl program costs. (The relationship between BLM and FWS planning is shown in Figure 3.)

Effective partnerships with conservation groups at the national and local levels will be critical to

accomplishing a significant amount of the strategies outlined in this plan. Expansion of Challenge Cost Share opportunities, development of new cooperative agreements/ memorandums of understanding that spell out responsibilities of parties involved and better implementation of existing agreements can provide the foundation to address many of the habitat needs within waterfowl habitat management areas.

Avocet

Recommended Strategies

1. Update or establish new cooperative agreements/ memoranda of understanding to address waterfowl management needs with other federal and state agencies, and conservation groups to improve working relationships, outline planning and implement project responsibilities, funding alternatives and procedures.

2. Consolidate habitat management actions within waterfowl habitat management areas from state *Fish and Wildlife 2000* plans, Bureauwide plans and other appropriate documents. Develop a 5-10-year waterfowl action plan with Ducks Unlimited and other interested conservation groups and state wildlife management agencies.

3. Work with FWS and state wildlife agencies to identify current planning procedures, research and processes for wetlands and waterfowl management; develop recommendations to better integrate habitat management actions; and establish local and regional waterfowl objectives.

4. Identify BLM biologist representatives as observers (by invitation) on flyway councils in which BLM has a major interest.

5. Identify one BLM representative per state to coordinate with FWS, state wildlife agencies and conservation groups on development or revision of joint venture projects and overall coordination of the *North American Waterfowl Management Plan* at the state level.

6. Appoint a national level representative to develop BLM's role in implementing the *North American Waterfowl Management Plan* and serve as the agency's coordinator.

7. Request participation in appropriate committees designated in the *North American Waterfowl Management Plan* to prepare multi-agency management plans and better integrate BLM's responsibility in the national plan.

Objective 8—Management Actions/Practices

Management Opportunities

Recent legislation such as the Emergency Wetlands Resources Act of 1986, the Food Security Act of 1985 (Farm Bill), the Water Quality Act of 1987 and the Agricultural Credit Act of 1987 need to be incorporated as policy within BLM Manual 1737.

The implementation of wetlands policy through resource management plans, activity plans and National Environmental Protection Act documents varies considerably based on available wetland resources within a given area and existing or potential conflicts or issues. Maintaining the productivity of wetland ecosystems through coordinated land use and activity planning and the subsequent implementation of management actions can be accomplished by timely and adequate fish and wildlife input into land use allocation decisions and by working with other BLM programs to maintain or enhance current resource conditions.

Recommended Strategies

1. Complete BLM Manual 1737, Wetland-Riparian Area Protection and Management to incorporate recent legislation and Departmental policy and regulations. Periodically conduct wetland technical procedure reviews assess policy implementation.

2. Review wetland evaluation and data management systems and make recommendations as to their use and applicability within BLM (See Appendix III).

3. Maintain and improve coordination with national wetlands and interagency committees, task forces, associations and councils (See Appendix III).

4. Develop a tracking process that can assess progress toward implementation of the Bureau's Waterfowl Habitat Management recommendations, *Fish and Wildlife 2000* plans and the *North American Waterfowl Management Plan.*

5. Explore use of Sikes Act Stamp areas for opportunities to improve wetland habitat.

6. As part of the land use or activity planning efforts, assess wetlands stock ponds, reservoirs, and adjacent uplands to determine their habitat condition (BLM Manuals 1737and 1622). Develop a Statewide ranking of areas needing improvement and include within the waterfowl component of individual State *Fish and Wildlife 2000* plans.

Ron Trogstad

Nest Structure

Conclusion

This plan has set forth some proposed strategies for implementing better waterfowl/wetland management on lands managed by the BLM. In using the terms waterfowl habitat management or waterfowl in this report, we realize that the management of waterfowl habitat includes management of a variety of species of species of fish and wildlife that are associated with this habitat type. While it may not be technically correct, we referred to waterfowl habitt management or waterfowl and include in those terms the variety of species that are commonly associated with those habitats in which waterfowl are found.

We have also attempted to illustrate some of the costs (in 1987 dollars) that are associated with the implementation of this program. The costs for implementing these strategies (approximately $40 million) is to be spread over the next 20 years. We have not included in this report anything relative topersonnel costs. This is intentional and the costs of additional personnel will have to be added to costs that are considered.

We have not presented any ranking or prioritization of areas needing work either within or across state boundaries. This was also intentional. Within states, ranking of projects will be done by each individual state BLM office in future planning efforts associated with the *Fish and Wildlife 2000* effort.

The implementation will not require a great deal of additional planning effort because most of the planning is completed. Quick action by the BLM will assist the United States' efforts in implementing its part of the *North American Waterfowl Management Plan.*

Mary Clay/Tom Stack & Associates

Canada Goose

Appendix I
Acreage of Wintering, Nesting and Migration Habitats

Areas of Major Concern (NAWMP*)

State Name	Winter Habitat Acres	Nesting Habitat Acres	Migration Habitat Acres
Alaska		1,746,000	501,000
Arizona			
California	255,600	135,900	510,900
Colorado	365,200	365,200	365,200
Idaho			
Montana		2,994,200	313,400
Nevada			
New Mexico			
Oregon	2,200	5,700	5,700
Utah			
Wyoming		40	
E. States		100	
Total	623,000	5,247,140	1,696,200

* *North American Waterfowl Management Plan*

Other Areas of Public Land

State Name	Winter Habitat Acres	Nesting Habitat Acres	Migration Habitat Acres
Alaska		10,635,600	160,000
Arizona	12,800	2,700	12,800
California	60,800	6,800	55,700
Colorado	10,100	20,700	18,000
Idaho	92,400	120,400	103,600
Montana	600	6,200	3,400
Nevada	85,000	85,000	85,000
New Mexico	8,000	4,500	7,500
Oregon	4,000	24,600	7,700
Utah	9,600	36,900	25,200
Wyoming	2,100	22,900	23,200
E. States			
Total	285,400	10,966,300	502,100

Appendix II
Waterfowl Habitat Management Areas and Plans

ALASKA

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
Teshekpuk Lake[1] Gulkana River	Gulkana HMP	Arctic Coastal Plain Colville River Kasegaluk Lagoon Nulato Pulbi Kaskokwim Tozitna Hughes Squirrel River Seward Peninsula Innoko/Piamute	

[1] *HMP prepared, but not signed*

ARIZONA

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
		Bill Williams River Ice House Bend Imperial Reservoir Mittry Lake/Teal Alley Imperial Dam Backwater Laguna Reservoir Imperial Dam Alamo Pinky Tank Picacho Zion	Bill Williams Grossman Ranch Topock North Laguna Martinez Laguna Martinez Laguna Martinez Laguna Martinez Hualapai Aquarius

CALIFORNIA

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
Antelope Reservoir Red Rock Lake		Surprise Valley Duck Flat/Tuledad Long Valley Massacre 8 Sites Wetlands Nelson Corral Iverson/Coyote Ash Marsh Dixie Valley Topaz Lake Soda Lake Duck Pond Goose Lake Salinas River North Fork Kaweah River Paynes Creek Table Mountain Adobe Lake Antelope Lake Fish Slough Larkin Lake Dry Lakes (2) Brigeport Reservoir Big Alkali	Surprise Valley Duck Flat Long Valley

COLORADO

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
		Hebron Slough Blanca Emperius Tract Spring Creek Reservoir Dry Lakes Walden Reservoir Mac Farlene Reservoir Mishak Lakes Riverside Reservoir Roubideau Gould/Crawford Red Rocks Hotchkiss South Platte Reservoir Fort Collins Reservoir	Hebron Slough Blanca Spring Crk. Res. Riverside Res S. Platte Res

IDAHO

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
Hideaway Island		Trueblood Jacks Creek Buckhorn Reservoir Blue Creek Reservoir Grasmore Reservoir Bybee Reservoir Dry Creek Reservoir Bruneau Valley Indian Creek Reservoir Bennett Road Reservoir Paddock Reservoir Crane Creek Reservoir North Fork Payette River Snake River Brownlee Reservoir Oxbow Reservoir	Snake R. Lands Star Lake Snake River

IDAHO (continued)

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
		Morrow Reservoir Immigrant Reservoir Blair Trail Reservoir Bruneau River Jarbridge River 71 Reservoir Cedar Creek Reservoir Salmon Falls Creek Salmon Falls Reservoir Macks Creek Foreman Reservoir Owyhee River Systems Snake River Dougal Reservoir Jordan Creek Reynolds Creek Juniper Basin Reservoir Andrison Reservoir Whitby Reservoir Jim Sage Hotwell Shoshone Creek Warm Creek Idahome Gravel Pits Milner Horse Creek Reservoir Juniper Grandine Pond Malad Tract Hawkins Reservoir Oxford Slough Bear River Torgesons Marsh Chesterfield Reservoir Oxford Reservoir Little Blackfoot Res. Snake River Omitted Lands Southfork Snake River Henry's Fork Thousand Springs Challis Bridge Salmon River Corridor	

IDAHO (continued)

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
		Morgan Basin Tower Creek Bottoms Miscellaneous Potholes Pioneer Reservoir Thorn Creek Reservoir Mormon Reservoir Magic Reservoir Canals Star Lake	

MONTANA

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
Northern Great Plains (6) Prairie Potholes (4) Whitewater Lake	Prairie Potholes Whitewater Lake	Kleinschmidt Lake Clarkfork River Missouri River to 3 Forks Big Hole River Park County South-Central Montana Southeast Montana	Red Rock Kleinschmidt

NEVADA

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
		Alkali Lake Railroad Valley WMA Spring Valley Swan Lake, Big Springs Duck Flat New Year Lake Continental Lake Smoke Creek Desert Humboldt Salt Marsh Walker River	Alkali Lake

NEVADA (continued)

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
		Walker Lake Ruby Valley Spring Valley Wild Horse Reservoir Humboldt River Steptoe Valley Newark Valley North Fork Humboldt River Mary's River Huntington Valley O'Neill Basin Salmon Falls Creek Snow Water Lake Thousand Springs Rock Creek Reese River Carico Lake Susie Creek Maggie Creek Bruneau River Pine Creek White River Kirch WMA Pahranagat/Key Pittman WMA Ash Meadows Monitor Lake Playa Smokey Valley Little Fish Lake Valley Fish Lake Valley Meadow Valley Wash Laughlin Backwaters	

NEW MEXICO

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
		San Simon Cienega Upper Rio Puerco Ojo del Espiritu Santo Pecos River Black River Delaware River Queen Lake Overflow Wetlands Lake Holloman	Up. Rio Puerco Ojo del Espirit Pecos River Black River Delaware River Queen Lake Overflow Wetlnd

OREGON

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
C. Smith Reservoir Pueblo Slough Hall Creek Silver Lake Pond Poison Creek Dikes Rye Grass Spring Mountain Creek Dike North Catlow Mountain Creek Flat Creek Poison Creek House Creek Dog Creek Pueblo Slough Lake-on-Trail Dixon Spring Dry Lake West Chain Lake Mid-Upper Pacific Coast Alkali Lake New River	C. Smith Res. Pueblo Slough Hall Creek Silver Lake Pnd Poison Crk Dike Rye Grass Sprng Mtn. Creek Dike North Catlow Mountain Creek Flat Creek Poison Creek House Creek Dog Creek Pueblo Slough Lake-on-Trail Dixon Spring Dry Lake West Chain Lake Alkali Lake	Warner Valley Howard Prairie John Day River Deschutes River Seasonal Lakes	Warner Valley

UTAH

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
		Otter Creek Fremont Narrows Lake Creek Preuss Lake Crafts Lake North Clear Lake South Tule Spring Mud Spring Painter Spring Salt Marsh Lake Pariette Wildlife Area Daimond Mtn/Blue Mtn. Willow Creek Green River Oxbows White River Quichapa Lake Jackson Lake Mud Springs Olsen Reservoir Shoemaker San Juan River Neilson Reservoir Rush Lake Clover Reservoir Horseshoe Springs Blue Springs Salt Wells	Lake Creek Preuss Lake S. Tule Spring Pariette Area Diamond Mtn. Green River Jackson Blue Springs

WYOMING

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
Alkali Marsh Thomas Fork	Alkali Marsh Thomas Fork	Bighorn Basin Great Divide Green River Basin Powder River Basin Little Snake Basin Lower Platte Basin	Bighorn River Red Desert Ten Mile Marsh Buffalo Wetland Baggs Table Mountain

EASTERN STATES

Areas of Concern (NAWMP)		Other Areas of Public Lands	
Waterfowl Management Area	HMP	Waterfowl Management Area	HMP
Mid Upper Atlantic Coast Lower Great Lakes Upper Mississippi Region Lower Mississippi Region Praire Potholes Southwest Florida			

Appendix III
Wetland Evaluation and Data Management Systems and Wetland Organizations

Recommendation 8-2, page 27

Wetland Evaluation
and Data Management Systems

1. Wetland Evaluation Technique
2. Synoptic Assesment Technique (EPA)
3. Wetland Data Management System (EPA)
4. Wetland Values and Plant Species Data Bases (FWS)
5. National Wetlands Inventory Project (FWS)
6. Lands Acquisition Priority System
7. Lands at Wetland Inventory Systems (Ducks Unlimited)

Recommendation 8-3, page 27

Committees, Councils and Task Groups

1. Interagency Wetland Value Assessment Group
2. National Wetlands Technical Council
3. Convention on Wetlands of International Importance
4. Waterfowl Fly Councils/National
5. Association of State Wetlands Managers
6. Society of Wetland Scientists
7. North American Waterfowl Management Plan Committees

* U.S. GOVERNMENT PRINTING OFFICE 1989: 675-250